No. 8800223

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Latham Seed Co.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'34870'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 28th *day of* June *in the year of our Lord one thousand nine hundred and* ninety-one.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Ed Madigan
Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME
Latham Seed Co.	34870	'34870' JSL 20 May 1991

4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)	5. PHONE (Include area code)
Rt. 1, Box 12 Alexander, Iowa 50420	515-692-3258

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PVPO NUMBER: 8800223

6. GENUS AND SPECIES NAME	7. FAMILY NAME (Botanical)
Glycine max	Leguminosae

FILING
DATE: Aug. 19, 1988
TIME: 9:30 ☑ A.M. ☐ P.M.

8. KIND NAME	9. DATE OF DETERMINATION
Soybean	3-15-88

FEES RECEIVED
AMOUNT FOR FILING: $ 1800.00
DATE: Aug. 19, 1988
AMOUNT FOR CERTIFICATE: $ 200.00
DATE: May 20, 1991

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.)

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION	12. DATE OF INCORPORATION
Iowa	

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Willard J. Latham
Latham Seed Co.
Rt. 1, Box 12
Alexander, Iowa 50420

PHONE (Include area code): 515-692-3258

14 CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☐ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* ☐ Yes *(If "Yes," answer items 16 and 17 below)* ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ Yes ☐ No	☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES ?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT	DATE
Willard J. Latham President	8-15-88
SIGNATURE OF APPLICANT	DATE

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

8800223

'34870'

9.J.J. 30 April 1991

Exhibit A: 1. Origin and Breeding History of the cultivar

1. '34870' is a soybean cultivar derived from a ~~unstated~~ between 'BSR 201' (female) and 'A3127' male, cross by the pedigree method of breeding.

2.

Generation	Step
F0	Hand Cross
F1	F1 Increase
F2	Selection
F3	Selection
F4	Selection
F5	Increase
F6	Yield Test
F7	Yield Test-Increase
F8	Yield Test-Increase
F9	Yield Test-Increase

3. Statement of Uniformity - Variant Levels.

'34870' is a uniform and stable soybean cultivar with commercially acceptable and predictable variants as follows:

for flower color, up 0.2% white flowers.

for pubescence color, up to 0.6% gray pubescence.

for hilum color, up 1.2% non black, consisting of gray, imperfect black, imperfect gray, buff and yellow hila.

for height, up to 0.6% talls (4-7" taller).

Exhibit A: 2. Statement of Stability - Generations of Reproduction

The following seed reproduction procedure should be used for '34870' to maintain its stability. Each year or every other year breeder seed will be produced from breeder seed of the previous generation. Each seed will be handpicked for uniformity, and the field rogued for any off-types.

Depending on the certifying state, foundation seed will be produced from breeder seed for two generations in a foundation seed - recurrent foundation seed system or one year for each class in a foundation seed, registered seed system. Certified seed will be but one generation.

Applicant may or may not use the certification system in its reproduction program.

Soybean Application No. 8800223, '34870' - Revision
January 6, 1989

Exhibit A-3. Statement of Uniformity - Variant Levels

'34870' is a uniform and stable soybean cultivar with commercially acceptable and predictable variants as follows:

- for flower color, up to 0.2% white flowers.

- for pubexcence color, up to 0.6% gray pubescence.

- for hilum color, up to 1.2% non-black, consisting of gray, imperfect black, imperfect gray, buff, and yellow hila.

- for height, up to 0.6% talls (4-7 inches taller).

The above list of variants and their frequencies reflect those observed in reproduction of this cultivar and found to be present after much hand-picking of seed and reselection, and roguing of seed fields. We have found that frequencies of this nature are very common in F4 derived cultivars.

The frequencies also allow for sampling errors and are higher than the normal observed frequencies, which explains the "up to" phrasing.

The total of the observed frequencies may seem to be high, but one must consider that some of these traits are linked. The hilum color variant frequency of 1.2% would absorb nearly the total pubescence color variants of 0.6%, as plants with imperfect-black, imperfect gray, and buff all have gray pubescence. A portion of the gray and yellow hilum variants may also have gray pubescence. Most of the white flower color variants may also be covered by the buff hilum and thus gray pubescence variants.

The height variants we find in nearly every cultivar that we have under increase and '34870' is no exception. Their sources seem to vary, depending on the cultivar. Some cultivars just seem to throw them, but in others the height variants seem to reflect relatively higher levels of outcrossing to other cultivars. Since their origin is somewhat uncertain we rogue them intensively as they occur.

In '34870' these height variants seem to be a combination of both sources of variants. However, because of this potential for out-crossing, which all cultivars have to some degree, these outcrosses contribute to variant frequencies for hilum, flower color, pubescence, height, and perhaps other not readily observed traits.

Again, the variant levels consider these actual and predicted sources.

8800223

Latham SEEDS

Alexander, Iowa 50420
Phone 515-692-3258

Premium Quality Oats and
Soybean Seed Since 1947

March 12, 1991

Soybean Application No. 8800223 (34870)

Addendum to Exhibit A. 3. Statement of Uniformity - Variant Levels

'34870' is an uniform and stable soybean cultivar with commercially acceptable and predictable variants as follows:

for flower color, 0.109%

for pubescence color, 0.314%

for hilum color, .694%

for height, 0.319%

In each year and increase the essential traits of '34870' have remained constant and stable.

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'34870'

Exhibit B: Novelty Statement

'34870' is most simialr to the cultivar 'Beeson 80' in overall appearance, but differs in several characteristics. '34870' has black hila, brown pubescence, and tan pods while 'Beeson 80' has imperfect black hila, gray puvescence, and brown pods.

8800223

Latham SEEDS

Alexander, Iowa 50420
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Soybean Application No. 8800223 (34870)

Addendum to Exhibit B: Novelty Statement

'34870' is also very similar to two additional soybean cultivars, 'HS 399' (Growmark) and 'A3966' (Asgrow). However, these three soybeans differ in a number of traits that are revealed in the table below.

Trait	'34870'	'HS 399'	'A3966'
Maturity - 95% Pod Color	275.5	284.0	285.5
Leaflet Size	Large	Large	Medium
Leaf Color*	5GY 4.5/8	7.5GY 3.3/4	5GY 4/5

*Reference: MUNSELL - Color Chart for Plant Tissues. Second Edition, Revised 1977.

'34870' is 8.5 days earlier to maturity than 'HS 399' and has lighter green leaves than 'HS 399'. '34870' is ten days earlier than 'A3966' and has slightly lighter leaves than 'A3966'.

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (Glycine max L.*)*

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Latham Seeds	34870	

ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*

Alexander, IA 50420

FOR OFFICIAL USE ONLY

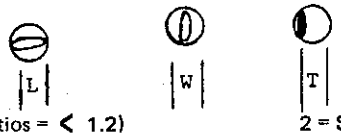
PVPO NUMBER

8800223

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g., [0][9]).

1. SEED SHAPE:

[1]



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

2. SEED COAT COLOR: (Mature Seed)

[1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other *(Specify)* _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

[1] 1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

4. SEED SIZE: (Mature Seed)

[1][7] Grams per 100 seeds

5. HILUM COLOR: (Mature Seed)

[6] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other *(Specify)* _____

6. COTYLEDON COLOR: (Mature Seed)

[1] 1 = Yellow 2 = Green

7. SEED PROTEIN PEROXIDASE ACTIVITY:

[ ] 1 = Low 2 = High

8. SEED PROTEIN ELECTROPHORETIC BAND:

[ ] 1 = Type A ($SP1^a$) 2 = Type B ($SP1^b$)

9. HYPOCOTYL COLOR:

[4] 1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

10. LEAFLET SHAPE:

[2] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other *(Specify)* _____

11. LEAFLET SIZE:

[2] 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

[3] 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
3 = Dark Green ('Gnome'; 'Tracy')

13. FLOWER COLOR:

[2] 1 = White 2 = Purple 3 = White with purple throat

14. POD COLOR:

[1] 1 = Tan 2 = Brown 3 = Black

15. PLANT PUBESCENCE COLOR:

[2] 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

[3] 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
3 = Bushy ('Gnome'; 'Govan')

17. PLANT HABIT:

[3] 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

18. MATURITY GROUP:

[5] 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

[ ] Bacterial Pustule *(Xanthomonas phaseoli* var. *sojensis)*

[ ] Bacterial Blight *(Pseudomonas glycinea)*

[ ] Wildfire *(Pseudomonas tabaci)*

FUNGAL DISEASES:

[ ] Brown Spot *(Septoria glycines)*

Frogeye Leaf Spot *(Cercospora sojina)*

[ ] Race 1 [ ] Race 2 [ ] Race 3 [ ] Race 4 [ ] Race 5 [ ] Other *(Specify)* _____

[ ] Target Spot *(Corynespora cassiicola)*

[ ] Downy Mildew *(Peronospora trifoliorum* var. *manshurica)*

[ ] Powdery Mildew *(Microsphaera diffusa)*

[ ] Brown Stem Rot *(Cephalosporium gregatum)*

[ ] Stem Canker *(Diaporthe phaseolorum* var. *caulivora)*

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

- [ ] Pod and Stem Blight *(Diaporthe phaseolorum* var; *sojae)*
- [ ] Purple Seed Stain *(Cercospora kikuchii)*
- [ ] Rhizoctonia Root Rot *(Rhizoctonia solani)*

Phytophthora Rot *(Phytophthora megasperma* var. *sojae)*

[1] Race 1 [0] Race 2 [1] Race 3 [1] Race 4 [0] Race 5 [0] Race 6 [1] Race 7

[0] Race 8 [0] Race 9 [0] Other *(Specify)* _____

VIRAL DISEASES:

- [ ] Bud Blight (Tobacco Ringspot Virus)
- [ ] Yellow Mosaic (Bean Yellow Mosaic Virus)
- [ ] Cowpea Mosaic (Cowpea Chlorotic Virus)
- [ ] Pod Mottle (Bean Pod Mottle Virus)
- [ ] Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode *(Heterodera glycines)*

[ ] Race 1 [ ] Race 2 [ ] Race 3 [ ] Race 4 [ ] Other *(Specify)* _____

- [ ] Lance Nematode *(Hoplolaimus Colombus)*
- [ ] Southern Root Knot Nematode *(Meloidogyne incognita)*
- [ ] Northern Root Knot Nematode *(Meloidogyne Hapla)*
- [ ] Peanut Root Knot Nematode *(Meloidogyne arenaria)*
- [ ] Reniform Nematode *(Rotylenchulus reniformis)*
- [ ] OTHER DISEASE NOT ON FORM *(Specify):* _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- [ ] Iron Chlorosis on Calcareous Soil
- [ ] Other *(Specify)* _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- [ ] Mexican Bean Beetle *(Epilachna varivestis)*
- [ ] Potato Leaf Hopper *(Empoasca fabae)*
- [ ] Other *(Specify)* _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape		Seed Coat Luster	
Leaf Shape		Seed Size	
Leaf Color		Seed Shape	
Leaf Size		Seedling Pigmentation	

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
34870 Submitted	266	2.0	86	--	--	--	--	17.0	
Beeson 80 Name of Similar Variety	263	2.0	81	--	--	--	--	23.9	

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A_2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

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'34870'

Exhibit E:

Soybean Cultivar '34870' was originated and developed by Dairyland Research International a division of Dairyland Seed Company, Inc.

Latham Seed Co. has obtained rights to the cultivar '34870' from Dairyland Research International by contract.